"System and Method of Providing Personalized Context Information for Vehicle"
Applicants: Simonds et al.
Docket No. 201-1111

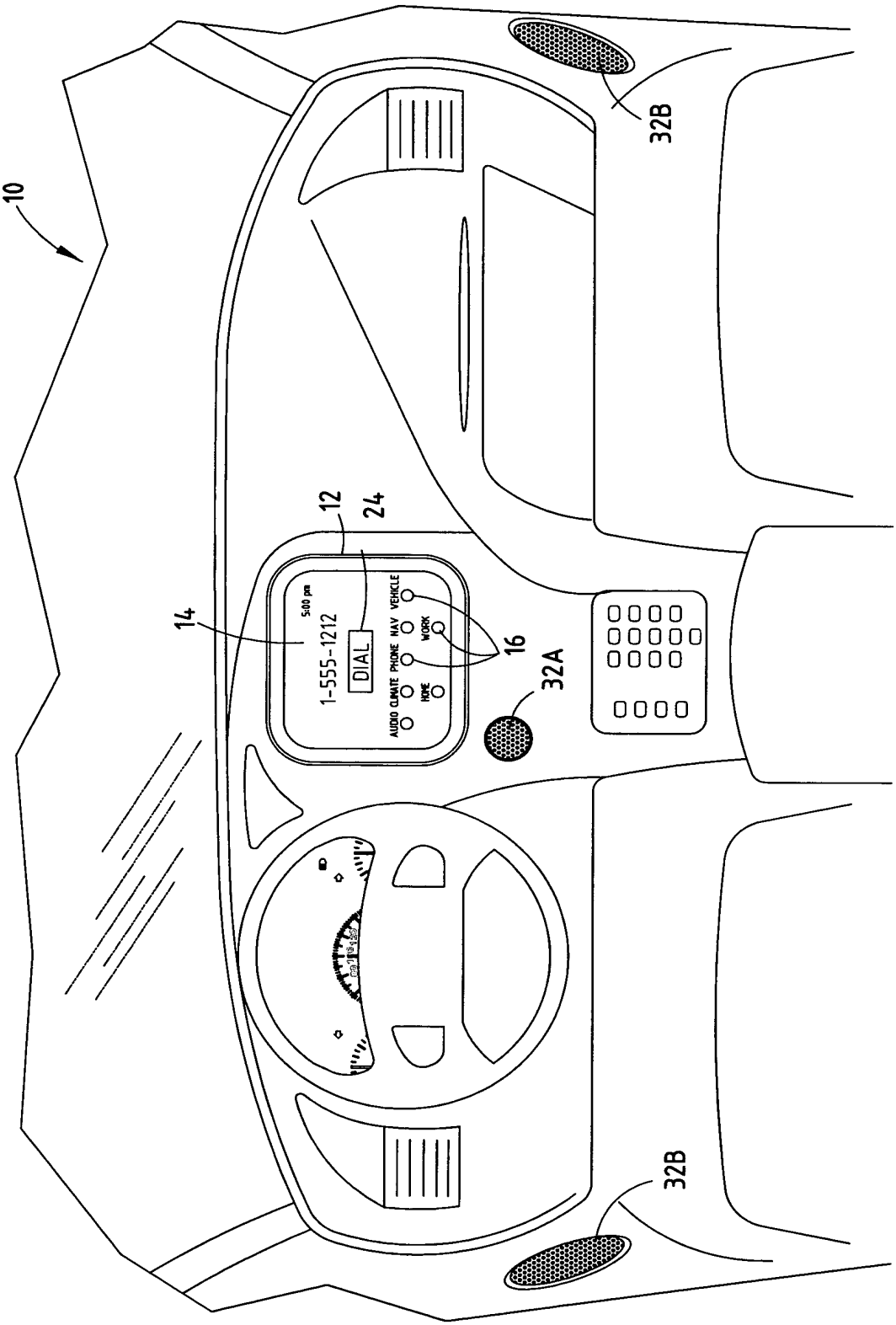

FIG. 1

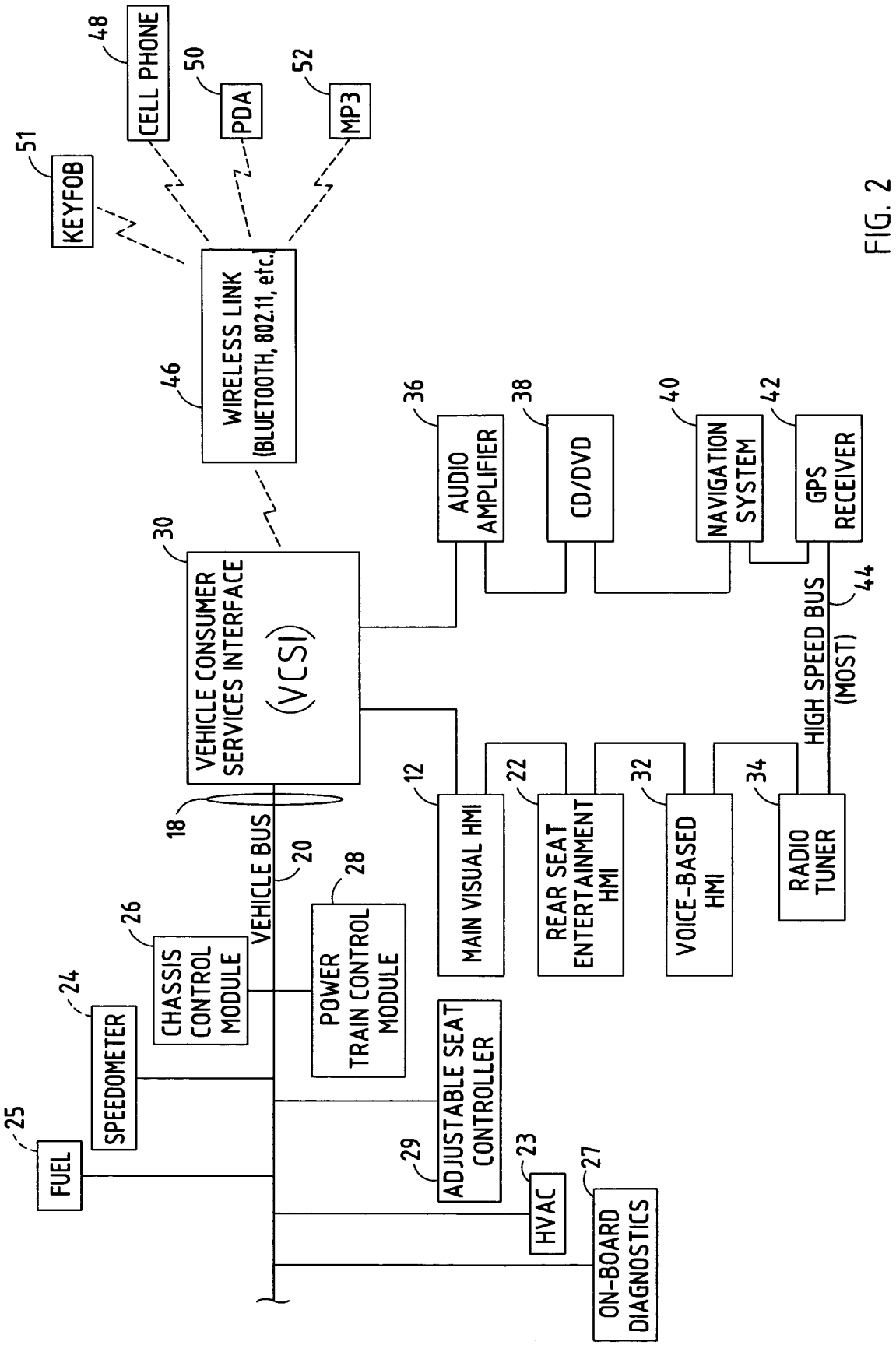
48
CELL PHONE
50
PDA
52
MP3
51
KEYFOB
46
WIRELESS LINK (BLUETOOTH, 802.11, etc.)
36
AUDIO AMPLIFIER
38
CD/DVD
40
NAVIGATION SYSTEM
42
GPS RECEIVER
30
VEHICLE CONSUMER SERVICES INTERFACE (VCSI)
44
HIGH SPEED BUS (MOST)
18
VEHICLE BUS
20
12
MAIN VISUAL HMI
22
REAR SEAT ENTERTAINMENT HMI
32
VOICE-BASED HMI
34
RADIO TUNER
28
POWER TRAIN CONTROL MODULE
26
CHASSIS CONTROL MODULE
24
SPEEDOMETER
25
FUEL
29
ADJUSTABLE SEAT CONTROLLER
23
HVAC
27
ON-BOARD DIAGNOSTICS

FIG. 2

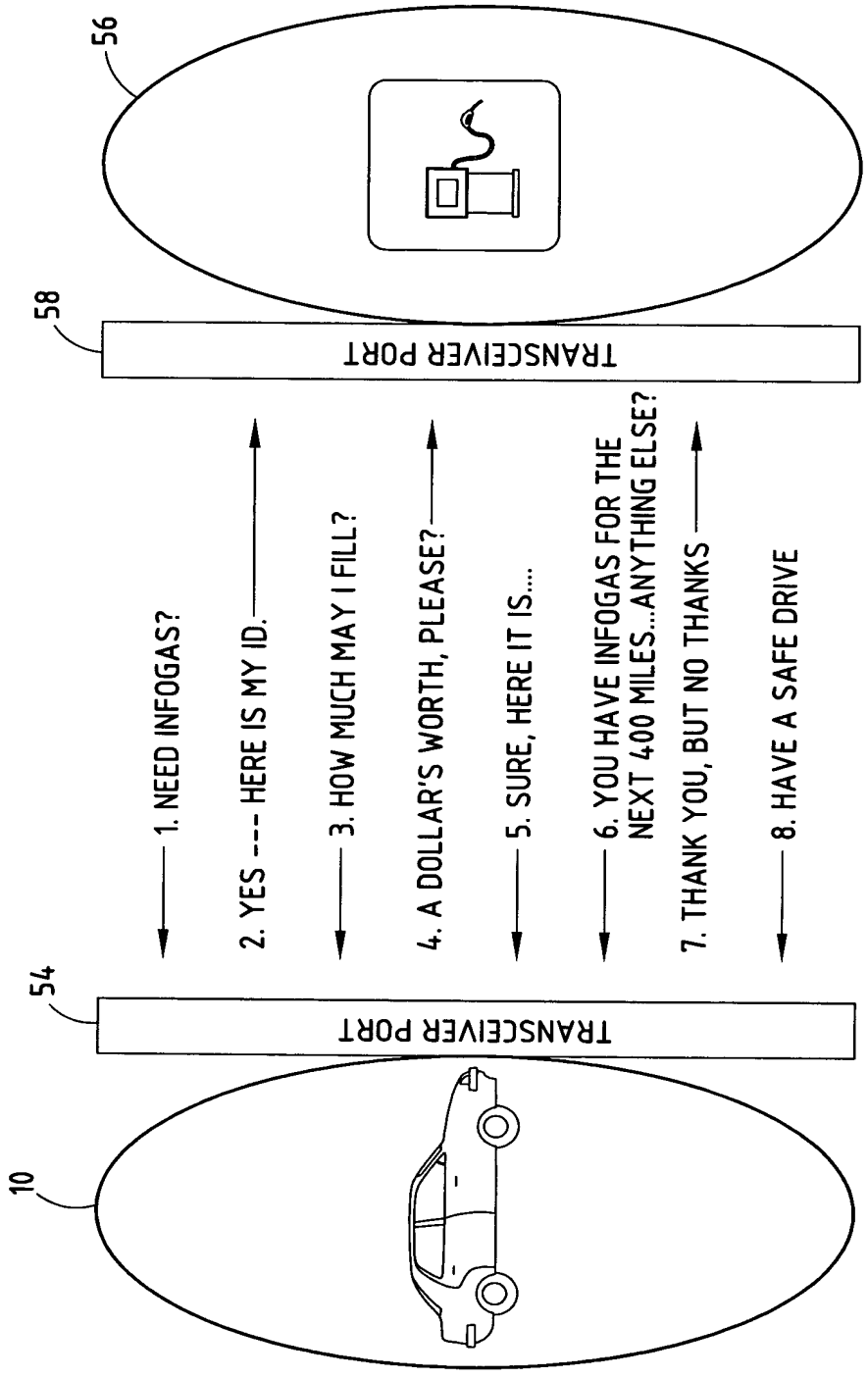
56
58
TRANSCEIVER PORT
1. NEED INFOGAS?
2. YES --- HERE IS MY ID.
3. HOW MUCH MAY I FILL?
4. A DOLLAR'S WORTH, PLEASE?
5. SURE, HERE IT IS....
6. YOU HAVE INFOGAS FOR THE NEXT 400 MILES...ANYTHING ELSE?
7. THANK YOU, BUT NO THANKS
8. HAVE A SAFE DRIVE
54
TRANSCEIVER PORT
10

FIG. 3

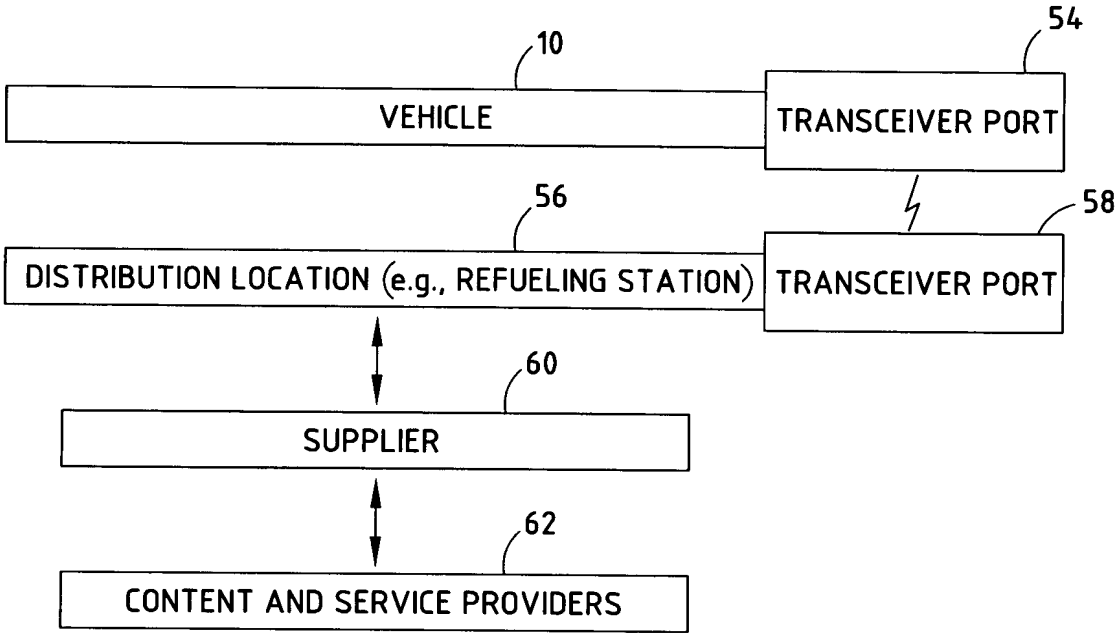
10
54
VEHICLE
TRANSCEIVER PORT
56
58
DISTRIBUTION LOCATION (e.g., REFUELING STATION)
TRANSCEIVER PORT
60
SUPPLIER
62
CONTENT AND SERVICE PROVIDERS

FIG. 4

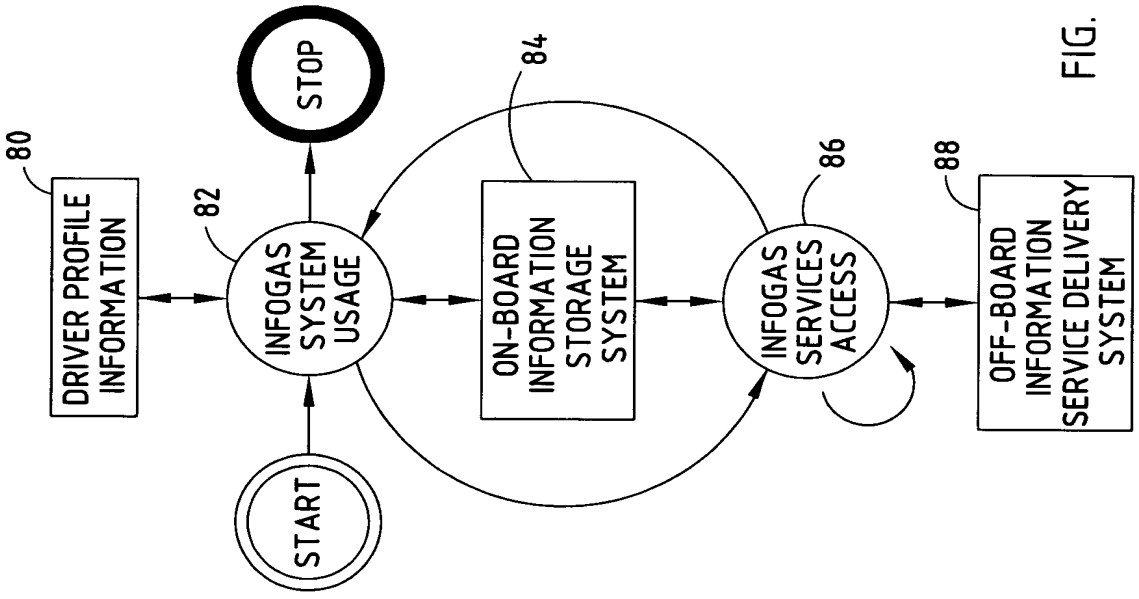
80
DRIVER PROFILE INFORMATION
82
INFOGAS SYSTEM USAGE
STOP
START
84
ON-BOARD INFORMATION STORAGE SYSTEM
86
INFOGAS SERVICES ACCESS
88
OFF-BOARD INFORMATION SERVICE DELIVERY SYSTEM

FIG. 5

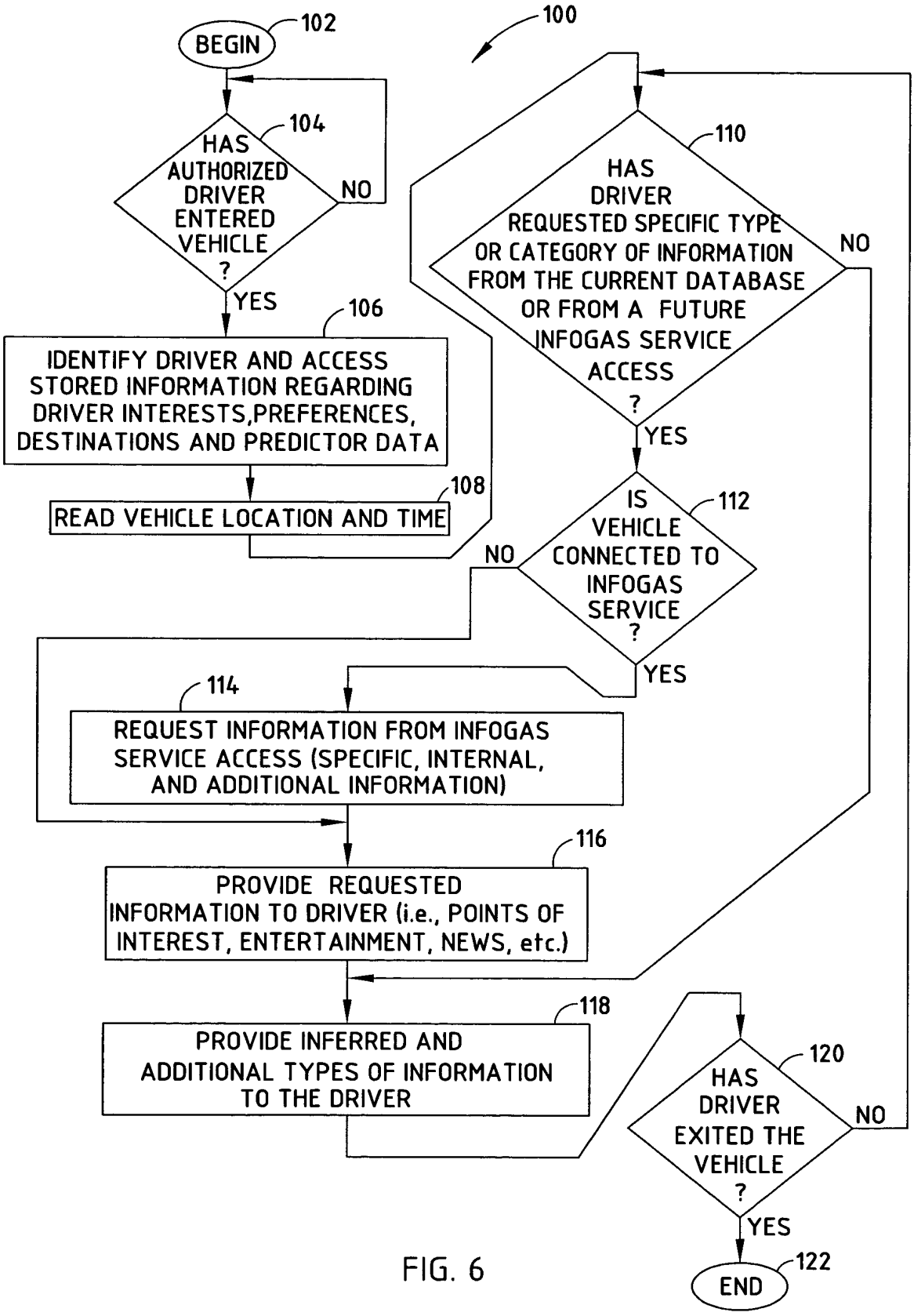
100
BEGIN
102
HAS AUTHORIZED DRIVER ENTERED VEHICLE ?
104
NO
YES
IDENTIFY DRIVER AND ACCESS STORED INFORMATION REGARDING DRIVER INTERESTS,PREFERENCES, DESTINATIONS AND PREDICTOR DATA
106
READ VEHICLE LOCATION AND TIME
108
HAS DRIVER REQUESTED SPECIFIC TYPE OR CATEGORY OF INFORMATION FROM THE CURRENT DATABASE OR FROM A FUTURE INFOGAS SERVICE ACCESS ?
110
NO
YES
IS VEHICLE CONNECTED TO INFOGAS SERVICE ?
112
NO
YES
REQUEST INFORMATION FROM INFOGAS SERVICE ACCESS (SPECIFIC, INTERNAL, AND ADDITIONAL INFORMATION)
114
PROVIDE REQUESTED INFORMATION TO DRIVER (i.e., POINTS OF INTEREST, ENTERTAINMENT, NEWS, etc.)
116
PROVIDE INFERRED AND ADDITIONAL TYPES OF INFORMATION TO THE DRIVER
118
HAS DRIVER EXITED THE VEHICLE ?
120
NO
YES
END
122

FIG. 6

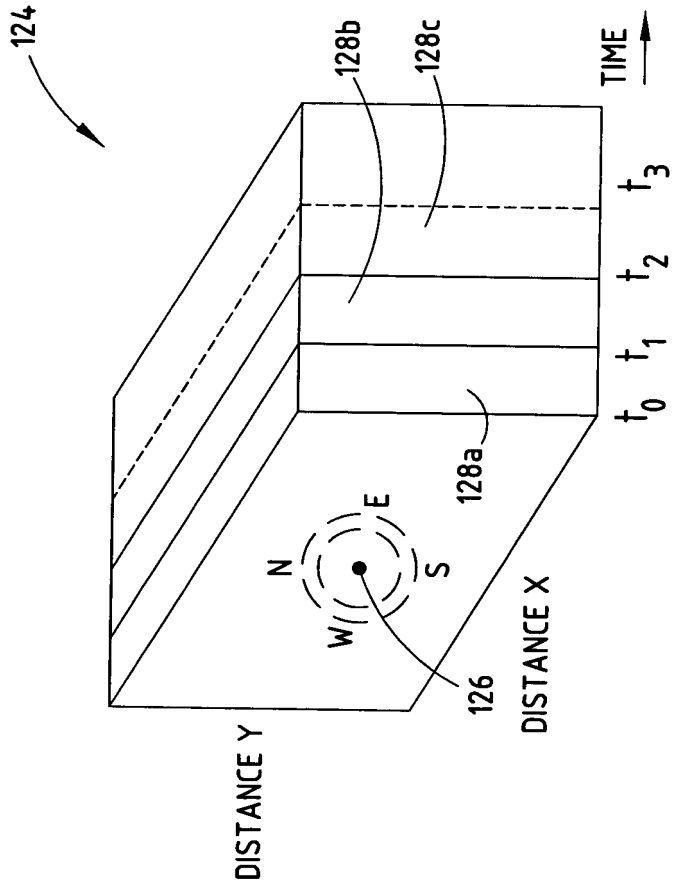
124
128b
128c
TIME
t_3
t_2
t_1
t_0
128a
E
N
S
W
126
DISTANCE X
DISTANCE Y

FIG. 7

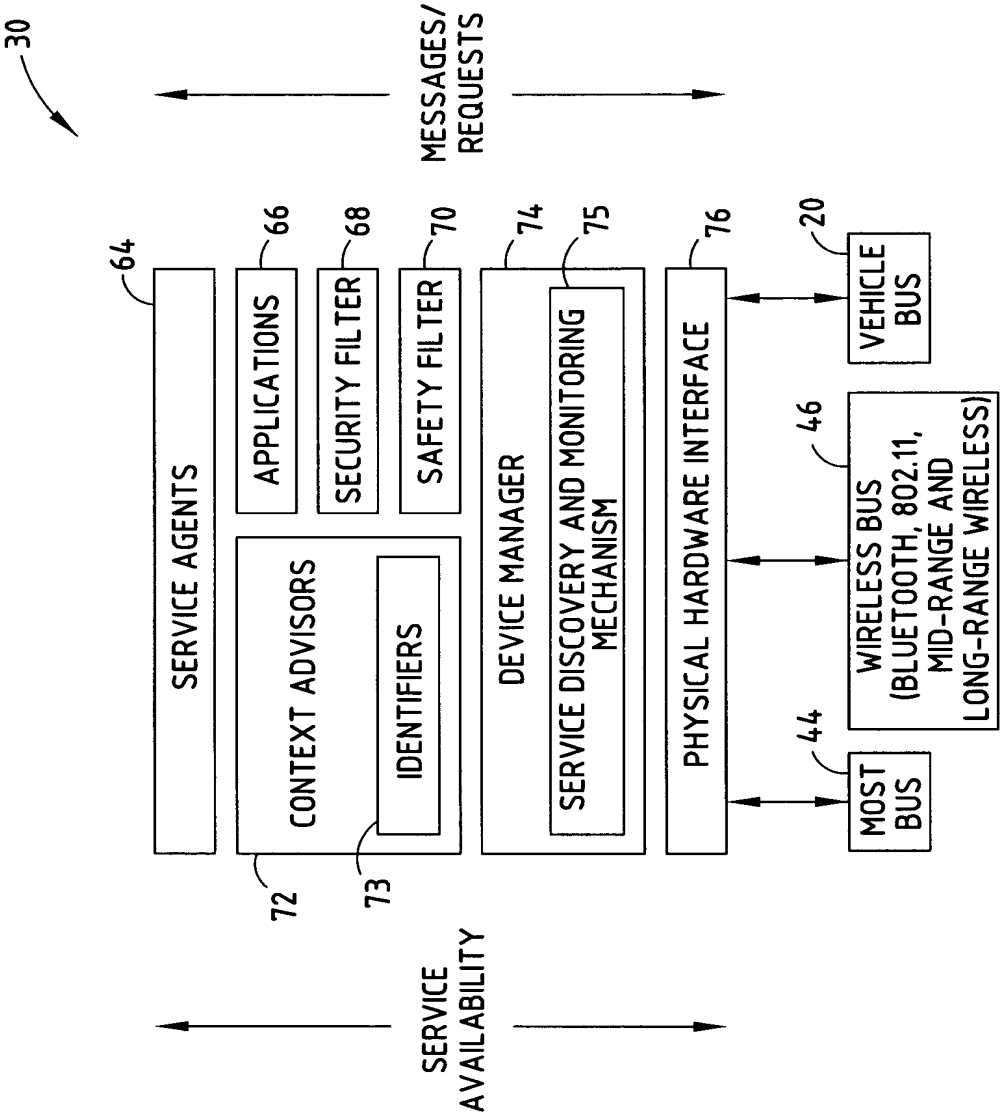
30
MESSAGES/ REQUESTS
64
SERVICE AGENTS
66
APPLICATIONS
68
SECURITY FILTER
70
SAFETY FILTER
74
DEVICE MANAGER
75
SERVICE DISCOVERY AND MONITORING MECHANISM
76
PHYSICAL HARDWARE INTERFACE
20
VEHICLE BUS
46
WIRELESS BUS (BLUETOOTH, 802.11, MID-RANGE AND LONG-RANGE WIRELESS)
44
MOST BUS
CONTEXT ADVISORS
IDENTIFIERS
72
73
SERVICE AVAILABILITY

FIG. 8

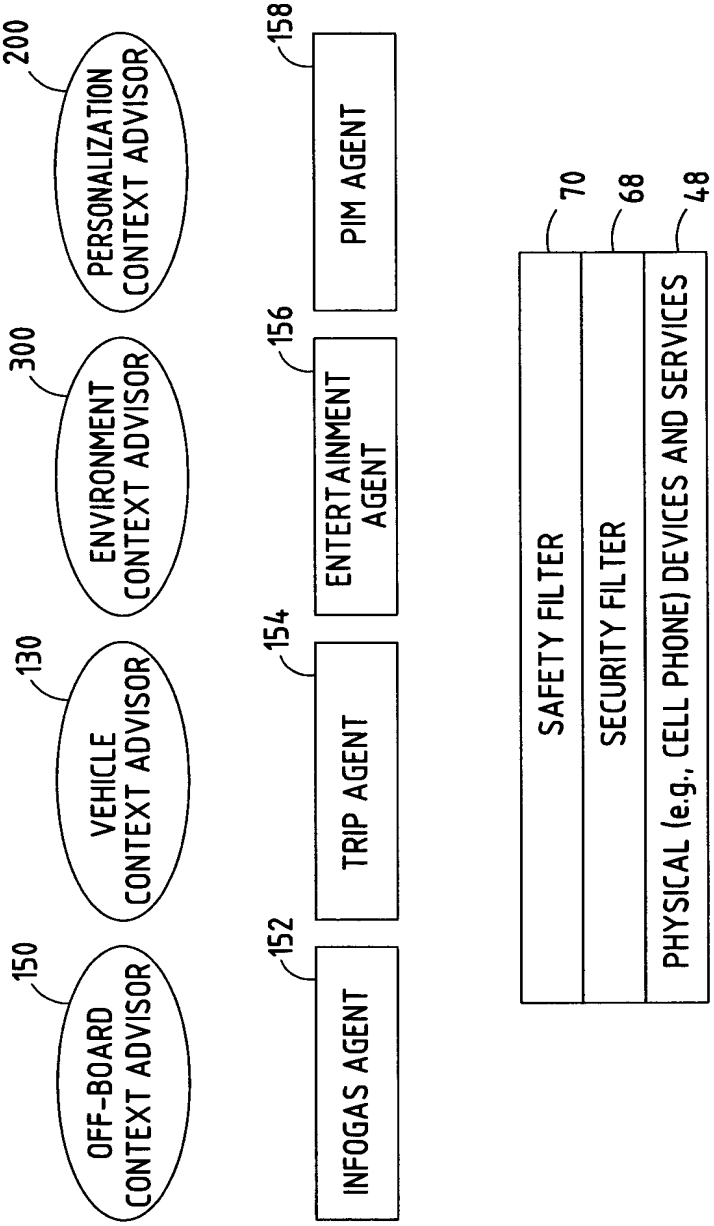
200
PERSONALIZATION CONTEXT ADVISOR
300
ENVIRONMENT CONTEXT ADVISOR
130
VEHICLE CONTEXT ADVISOR
150
OFF-BOARD CONTEXT ADVISOR
158
PIM AGENT
156
ENTERTAINMENT AGENT
154
TRIP AGENT
152
INFOGAS AGENT
70
SAFETY FILTER
68
SECURITY FILTER
48
PHYSICAL (e.g., CELL PHONE) DEVICES AND SERVICES

FIG. 9

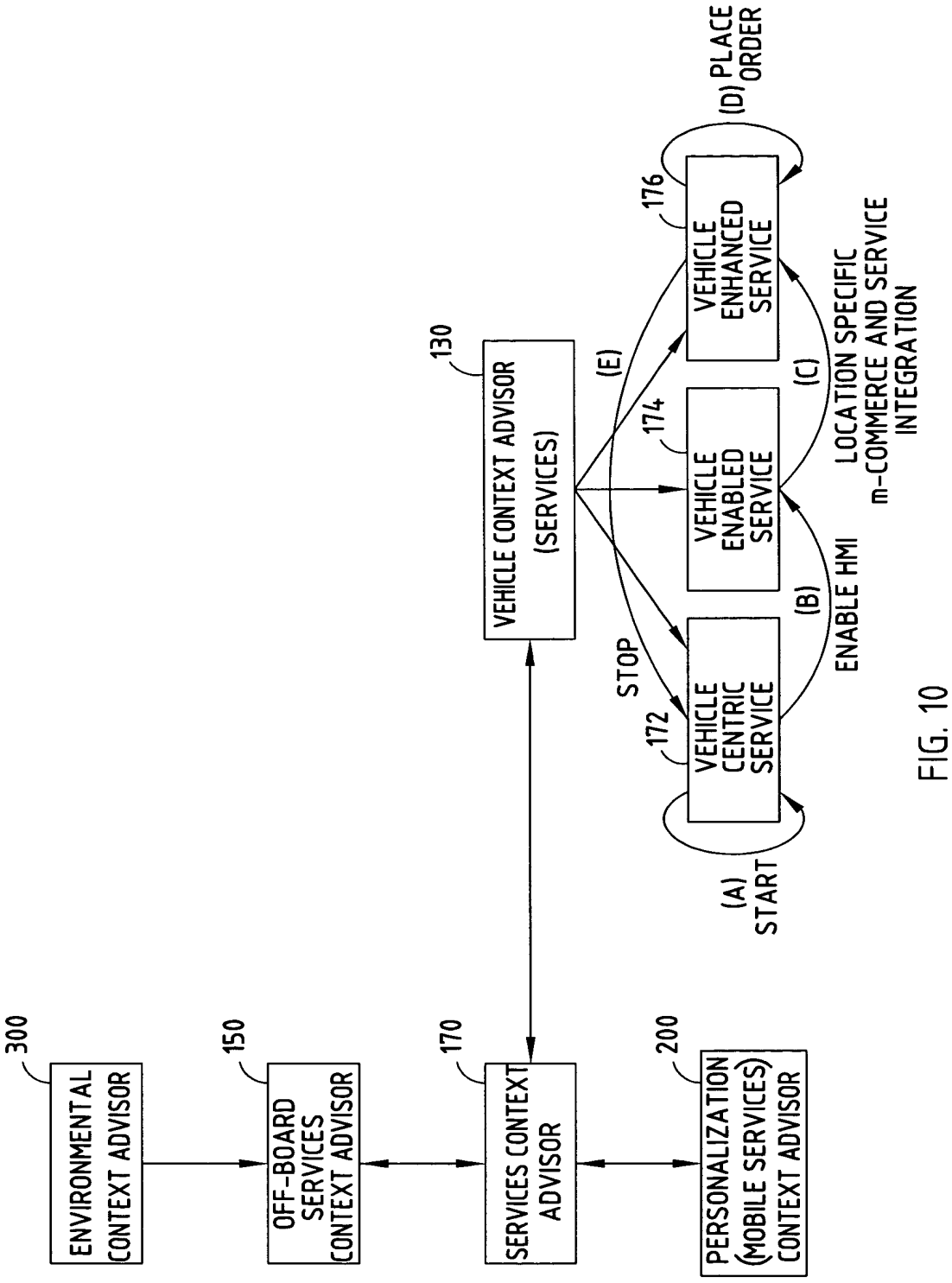
300
ENVIRONMENTAL CONTEXT ADVISOR
150
OFF-BOARD SERVICES CONTEXT ADVISOR
170
SERVICES CONTEXT ADVISOR
200
PERSONALIZATION (MOBILE SERVICES) CONTEXT ADVISOR
130
VEHICLE CONTEXT ADVISOR (SERVICES)
172
VEHICLE CENTRIC SERVICE
174
VEHICLE ENABLED SERVICE
176
VEHICLE ENHANCED SERVICE
(A) START
(B) ENABLE HMI
(C) LOCATION SPECIFIC m-COMMERCE AND SERVICE INTEGRATION
(D) PLACE ORDER
(E) STOP

FIG. 10

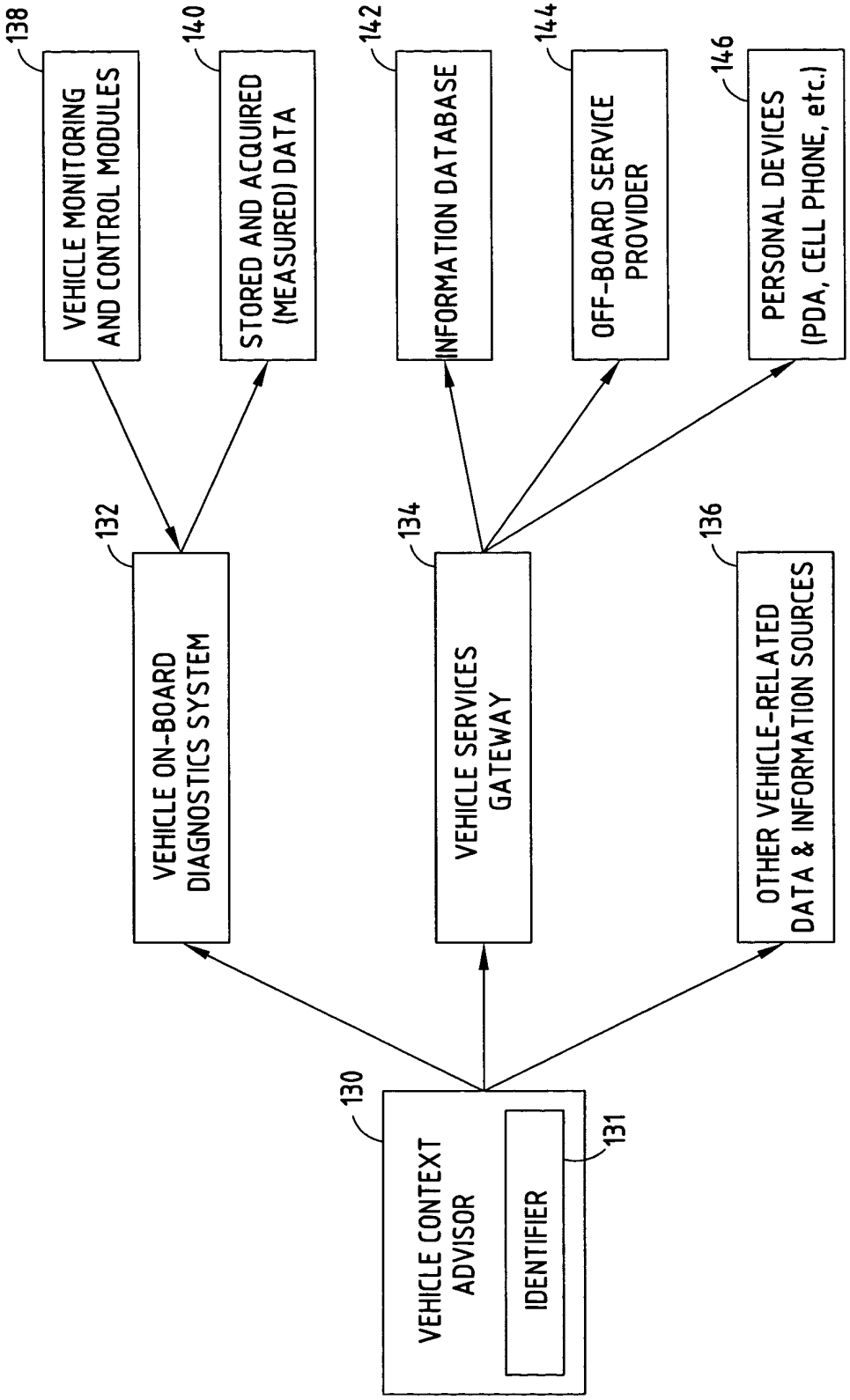
138
VEHICLE MONITORING AND CONTROL MODULES
140
STORED AND ACQUIRED (MEASURED) DATA
142
INFORMATION DATABASE
144
OFF-BOARD SERVICE PROVIDER
146
PERSONAL DEVICES (PDA, CELL PHONE, etc.)
132
VEHICLE ON-BOARD DIAGNOSTICS SYSTEM
134
VEHICLE SERVICES GATEWAY
136
OTHER VEHICLE-RELATED DATA & INFORMATION SOURCES
130
VEHICLE CONTEXT ADVISOR
IDENTIFIER
131

FIG. 11

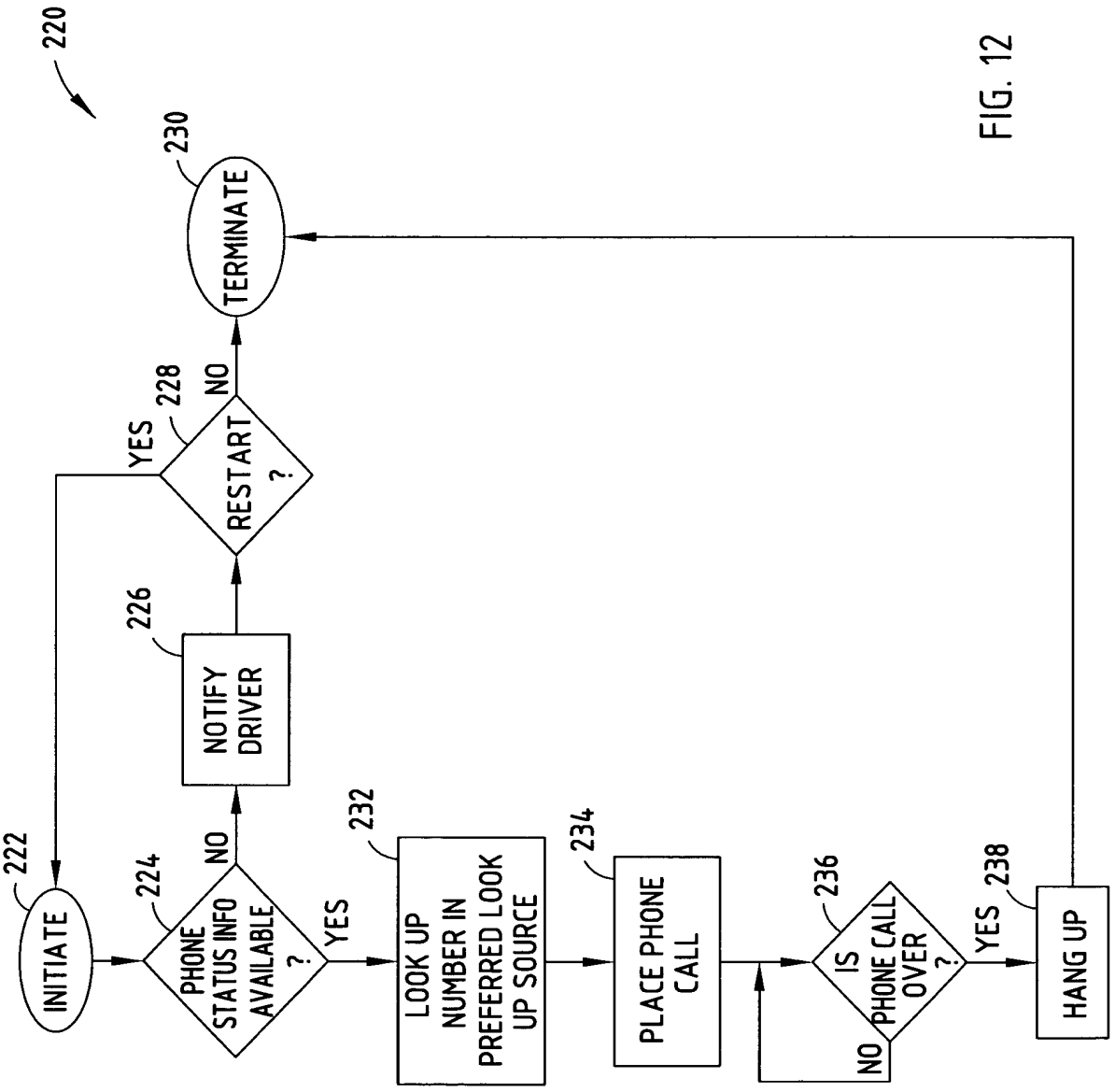
220
230
TERMINATE
228
NO
YES
RESTART ?
226
NOTIFY DRIVER
222
INITIATE
224
PHONE STATUS INFO AVAILABLE ?
NO
YES
232
LOOK UP NUMBER IN PREFERRED LOOK UP SOURCE
234
PLACE PHONE CALL
236
IS PHONE CALL OVER ?
NO
YES
238
HANG UP

FIG. 12

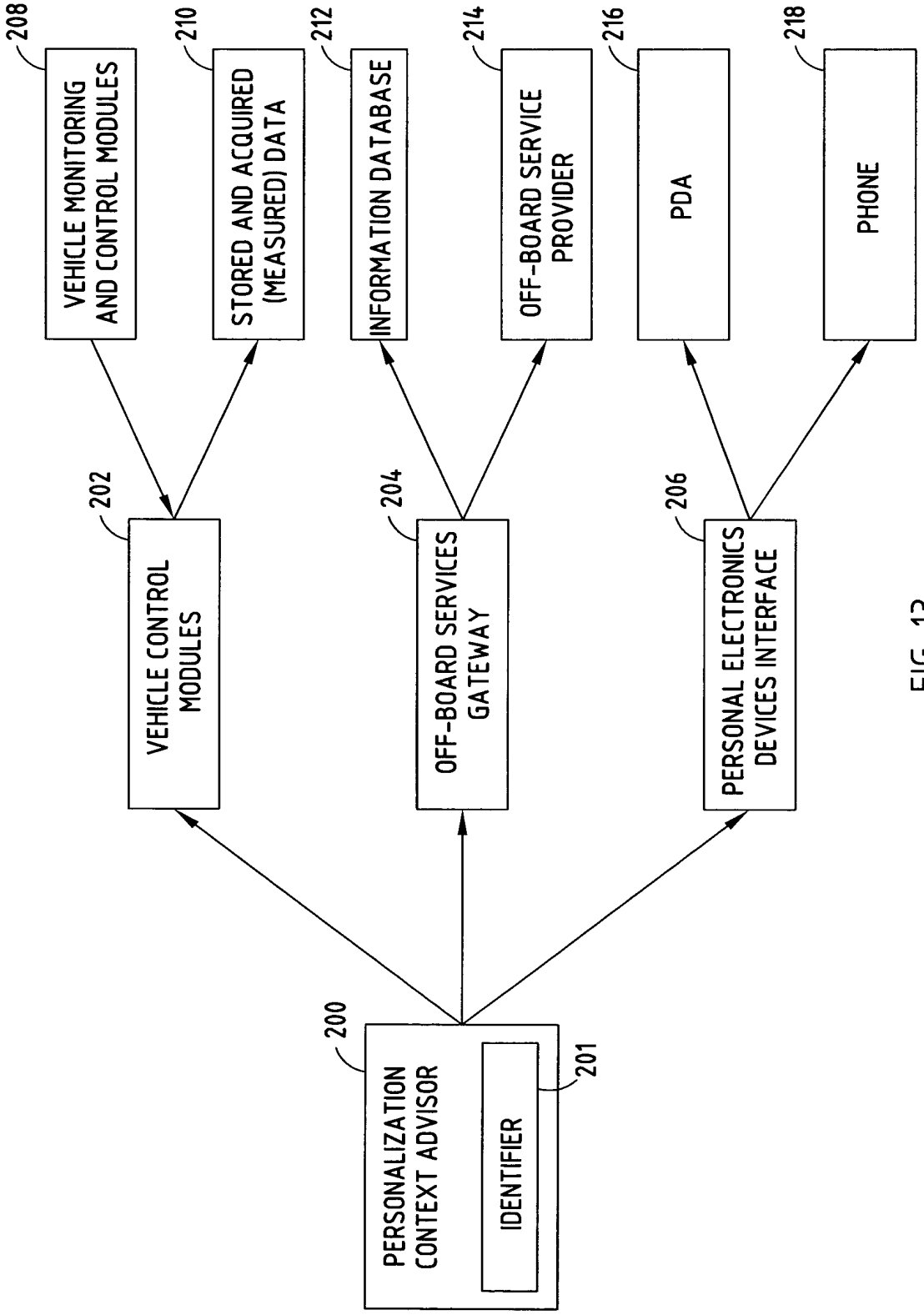
208
VEHICLE MONITORING AND CONTROL MODULES
210
STORED AND ACQUIRED (MEASURED) DATA
212
INFORMATION DATABASE
214
OFF-BOARD SERVICE PROVIDER
216
PDA
218
PHONE
202
VEHICLE CONTROL MODULES
204
OFF-BOARD SERVICES GATEWAY
206
PERSONAL ELECTRONICS DEVICES INTERFACE
200
PERSONALIZATION CONTEXT ADVISOR
IDENTIFIER
201

FIG. 13

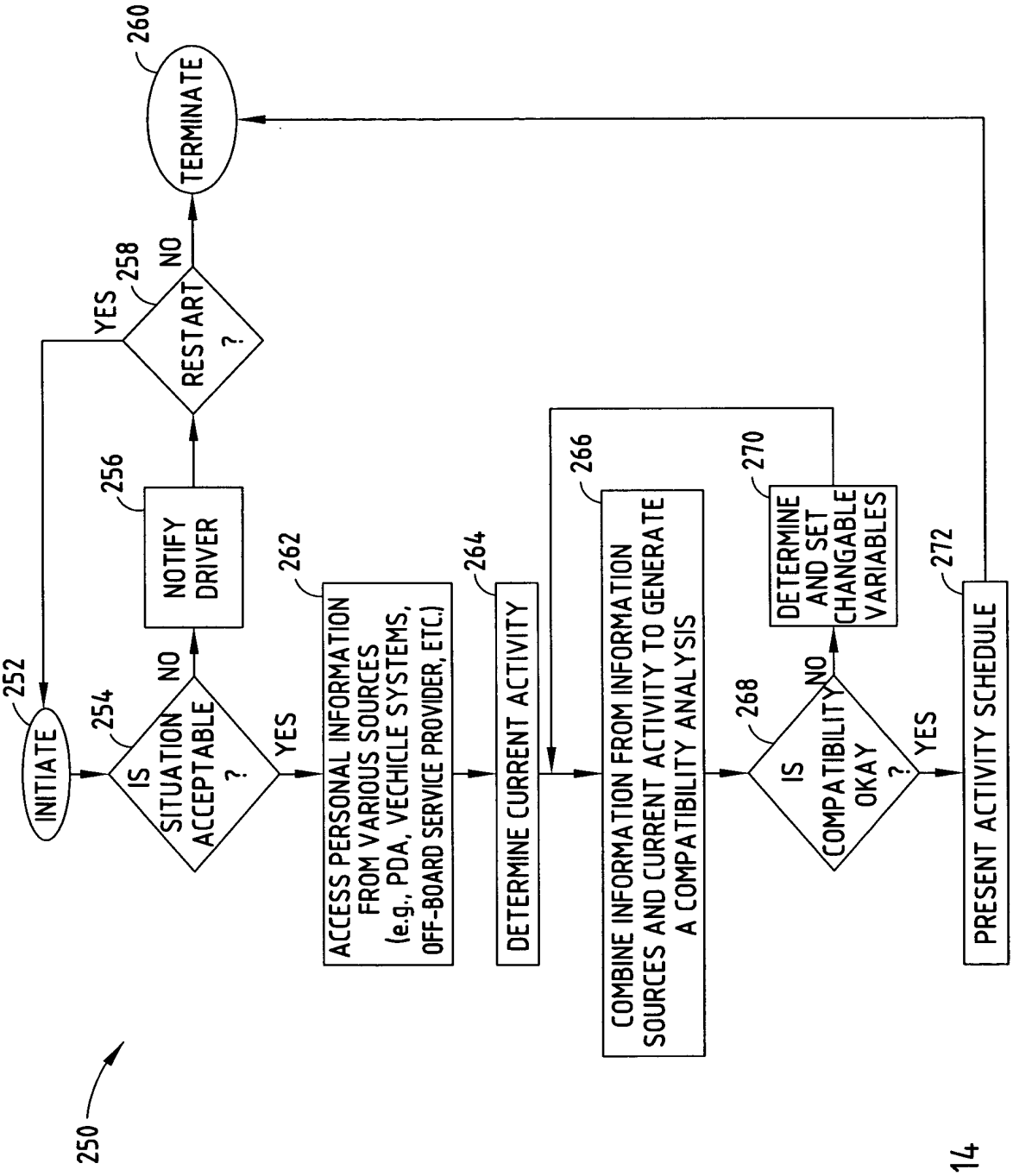
250
INITIATE
252
IS SITUATION ACCEPTABLE ?
254
NO
YES
NOTIFY DRIVER
256
RESTART ?
258
YES
NO
TERMINATE
260
ACCESS PERSONAL INFORMATION FROM VARIOUS SOURCES (e.g., PDA, VECHICLE SYSTEMS, OFF-BOARD SERVICE PROVIDER, ETC.)
262
DETERMINE CURRENT ACTIVITY
264
COMBINE INFORMATION FROM INFORMATION SOURCES AND CURRENT ACTIVITY TO GENERATE A COMPATIBILITY ANALYSIS
266
IS COMPATIBILITY OKAY ?
268
NO
YES
DETERMINE AND SET CHANGABLE VARIABLES
270
PRESENT ACTIVITY SCHEDULE
272

FIG. 14

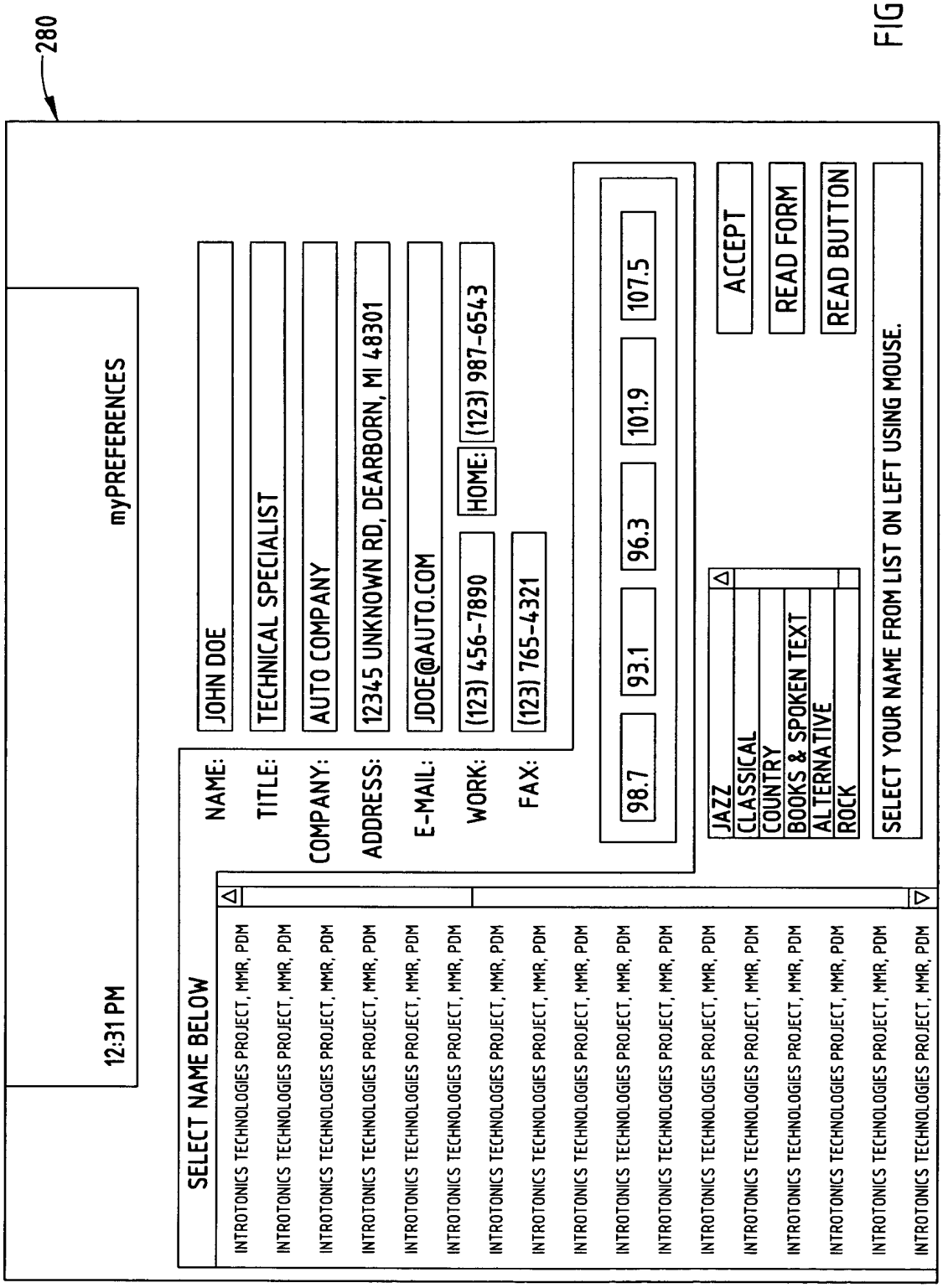
280
12:31 PM
myPREFERENCES
SELECT NAME BELOW
INTROTONICS TECHNOLOGIES PROJECT, MMR, PDM
NAME:
JOHN DOE
TITLE:
TECHNICAL SPECIALIST
COMPANY:
AUTO COMPANY
ADDRESS:
12345 UNKNOWN RD, DEARBORN, MI 48301
E-MAIL:
JDOE@AUTO.COM
WORK:
(123) 456-7890
HOME:
(123) 987-6543
FAX:
(123) 765-4321
98.7
93.1
96.3
101.9
107.5
JAZZ
CLASSICAL
COUNTRY
BOOKS & SPOKEN TEXT
ALTERNATIVE
ROCK
ACCEPT
READ FORM
READ BUTTON
SELECT YOUR NAME FROM LIST ON LEFT USING MOUSE.

FIG. 15

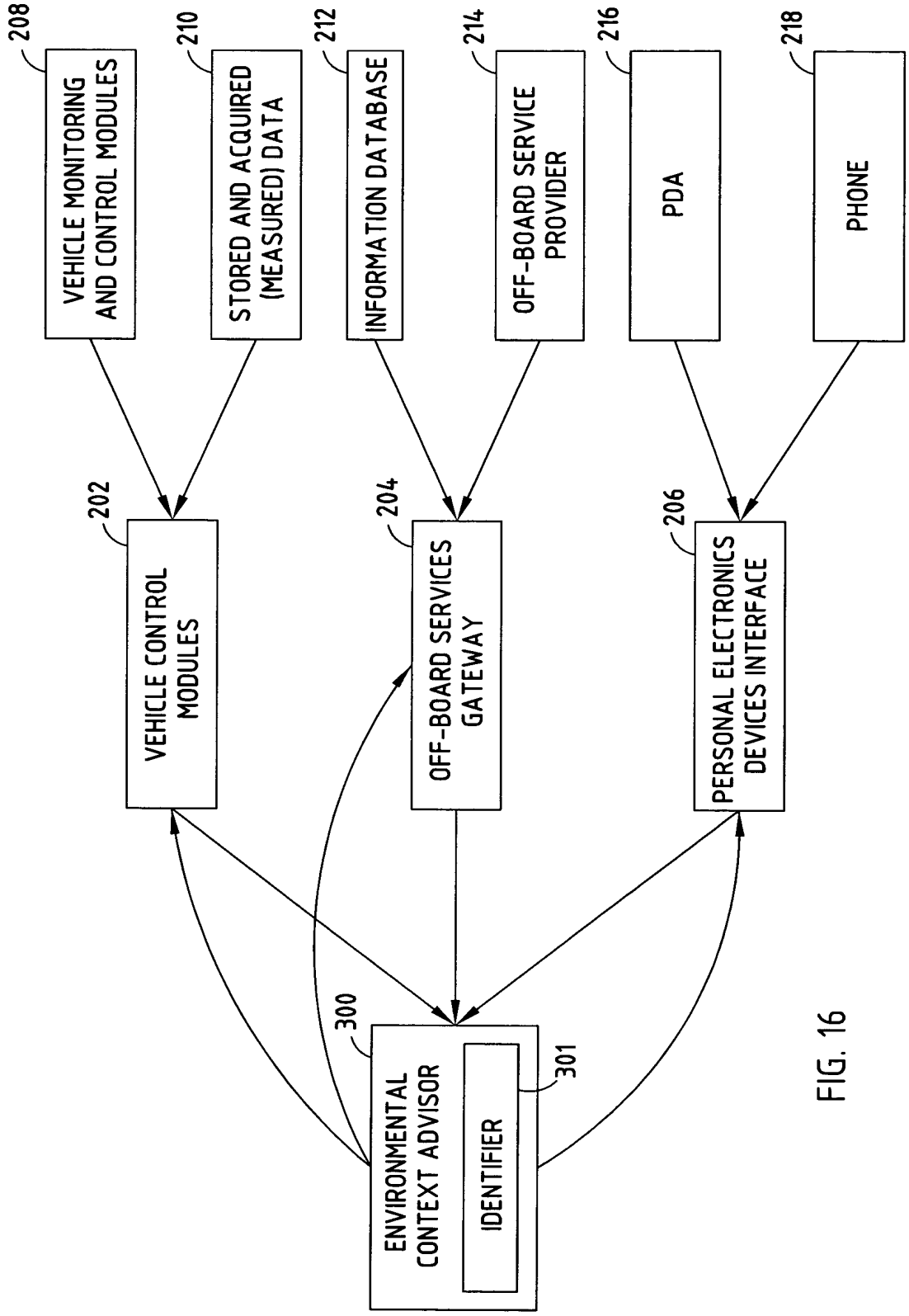
208
VEHICLE MONITORING AND CONTROL MODULES
210
STORED AND ACQUIRED (MEASURED) DATA
212
INFORMATION DATABASE
214
OFF-BOARD SERVICE PROVIDER
216
PDA
218
PHONE
202
VEHICLE CONTROL MODULES
204
OFF-BOARD SERVICES GATEWAY
206
PERSONAL ELECTRONICS DEVICES INTERFACE
300
ENVIRONMENTAL CONTEXT ADVISOR
IDENTIFIER
301

FIG. 16

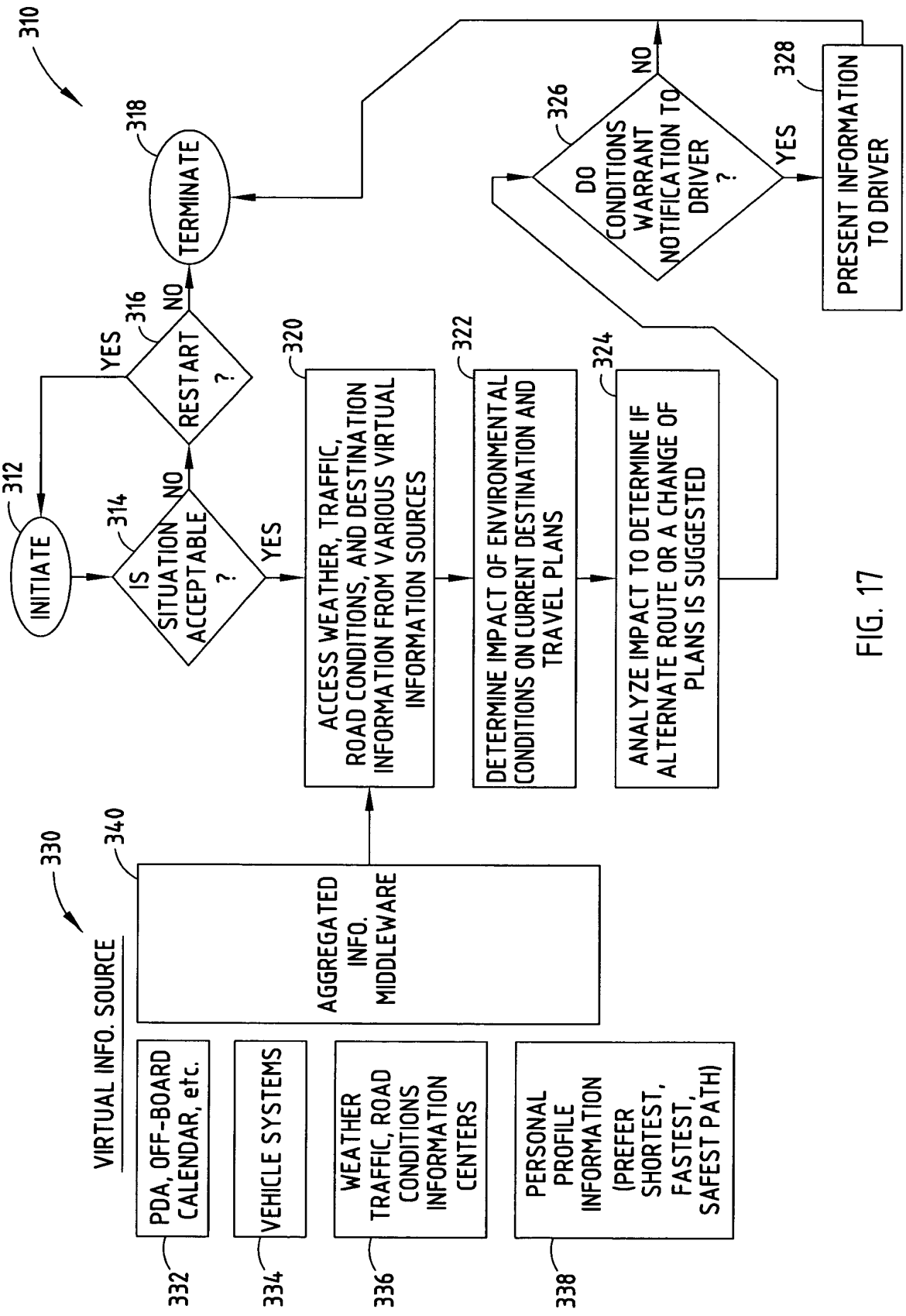
310
INITIATE
312
IS SITUATION ACCEPTABLE ?
314
NO
YES
RESTART ?
316
YES
NO
TERMINATE
318
ACCESS WEATHER, TRAFFIC, ROAD CONDITIONS, AND DESTINATION INFORMATION FROM VARIOUS VIRTUAL INFORMATION SOURCES
320
DETERMINE IMPACT OF ENVIRONMENTAL CONDITIONS ON CURRENT DESTINATION AND TRAVEL PLANS
322
ANALYZE IMPACT TO DETERMINE IF ALTERNATE ROUTE OR A CHANGE OF PLANS IS SUGGESTED
324
DO CONDITIONS WARRANT NOTIFICATION TO DRIVER ?
326
NO
YES
PRESENT INFORMATION TO DRIVER
328
330
VIRTUAL INFO. SOURCE
340
AGGREGATED INFO. MIDDLEWARE
PDA, OFF-BOARD CALENDAR, etc.
332
VEHICLE SYSTEMS
334
WEATHER TRAFFIC, ROAD CONDITIONS INFORMATION CENTERS
336
PERSONAL PROFILE INFORMATION (PREFER SHORTEST, FASTEST, SAFEST PATH)
338

FIG. 17